Amendments to the Claims

1.(currently amended)   A method comprising:

storing data in a ~~first memory, the first memory being a~~ non-volatile <u>cache memory</u> ~~storage medium in a cache~~; and

pinning a portion of the data stored in the ~~first~~ <u>non-volatile cache</u> memory.

2.(currently amended)   The method of claim 1, wherein storing the data comprises storing the data in a mass storage <u>non-volatile</u> cache <u>memory</u>.

3.(original)   The method of claim 1, wherein pinning of data comprises pinning the portion of data necessary for a system initialization.

4.(currently amended)   The method of claim 1, wherein the pinning of data comprises:

storing metadata corresponding to the data stored in the ~~first~~ <u>non-volatile cache</u> memory; and

setting a state in the metadata to indicate that a corresponding line of data is pinned.

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5.(original)   The method of claim 4, wherein storing the metadata comprises storing the metadata in a second memory.

6.(original)   The method of claim 4, wherein storing the metadata comprises storing the metadata in a volatile storage media.

7.(original)   A metadata stored in a memory comprising:

a first state to indicate a least recently used information of a corresponding line of data in a non-volatile memory; and

a second state to indicate whether a corresponding line of data in the non-volatile memory is pinned.

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8.(original)   The metadata of claim 7, further comprising:

a third state to indicate whether a corresponding line of data in the non-volatile memory was present before a system initialization.

9.(original)   The metadata of claim 7, wherein the metadata is stored in a volatile storage media.

10.(original)   A system comprising:

a cache including a first storage media to store cache data, the first storage media being a non-volatile storage media; and

a second storage media to store metadata for the cache data stored in the first storage media, the metadata including a state to indicate whether a corresponding line of data is pinned.

11.(original)   The system of claim 10, wherein the cache is a mass storage cache.

12.(original)   The system of claim 10, wherein the second storage media is a volatile storage media.

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13.(original) The system of claim 10, wherein the second storage media is included in the cache.

14.(original) The system of claim 10, wherein the cache is implemented as an add-in card.

15.(original) A method comprising:

accessing a first memory during a system initialization, the first memory being a cache; and

pinning data accessed during the system initialization in the first memory.

16.(original) The method of claim 15, wherein the cache is a mass storage cache.

17.(original) The method of claim 15, further comprising:

limiting the pinning of data during the system initialization.

18.(original) The method of claim 15, wherein the pinning of data during the system initialization comprises:

storing metadata for the data stored in the first memory, the metadata including a first state to indicate whether a corresponding line of data is pinned; and

setting a first state corresponding to the accessed data to indicate that the accessed data is pinned.

19.(original) The method of claim 18, wherein the pinning of data further comprises:

setting a timer upon the system initialization; and

setting a first state corresponding to the accessed data until the timer expires.

20.(original) The method of claim 18, wherein the pinning of data further comprises:

setting a maximum amount of data to pin; and

setting a first state corresponding to the accessed data until the maximum amount is exceeded.

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21.(original) The method of claim 18, wherein the metadata further includes a second state; and wherein the pinning of data further comprises:

setting a second state for data that was present before system initialization, the setting of the second state to indicate that a corresponding data was present before the system initialization;

setting a timer upon the system initialization;

setting a maximum amount of data to pin;

setting a first state corresponding to the accessed data if the maximum amount is not exceeded and if the timer has not expired; and otherwise

clearing a first state corresponding to a pinned data and setting a first state corresponding to the accessed data if the second state corresponding to the pinned data is not set and the pinned data corresponding to the accessed data is set, and if the timer has not expired.

22.(original) The method of claim 21, wherein the metadata further includes a third state to indicate the age of a corresponding line of data and the clearing of a first state comprises:

clearing the latest line of data if there is more than one line of pinned data whose second state is not set.

23.(original) A system comprising:

a cache including a first storage media to access during a system initialization, the first storage media being non-volatile;

a second storage media to store metadata for data accessed during the system initialization, the metadata including a first state; and

a memory control hub to cause a first state to be set for data accessed during the system initialization, the setting of the first state to indicate that a corresponding line of data is pinned.

24.(original) The system of claim 23, wherein the metadata further includes a second state; and wherein the memory control hub causes the second state to be set for data present before the system initialization, the setting of the second state to indicate that a corresponding line of data was present before the system initialization.

25.(original) The system of claim 23, wherein the cache is a mass storage cache.

26.(original) The system of claim 23, wherein the memory control hub limits the amount of data pinned.

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27.(original) The system of claim 23, wherein the second storage media is a volatile storage media.

28.(original) The system of claim 23, wherein the second storage media is included in the cache.

29.(original) The system of claim 23, wherein the cache is implemented as an add-in card.

30.(original) A program loaded into a computer readable media comprising:

a first group of computer instructions to access data in a non-volatile cache;

a second group of computer instructions to pin data accessed in the non-volatile cache.

31.(original) The program of claim 30, wherein the second group of computer instructions includes computer instructions to pin data accessed during a system initialization.

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32.(original) The program of claim 31, wherein the second group of computer instructions further includes computer instructions to limit the amount of data pinned.

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33.(newly added)   A method, comprising:

preventing eviction of data stored in a non-volatile cache memory.

34.(newly added)   The method of claim 33, wherein preventing comprises preventing eviction of cache data stored in a mass storage non-volatile disk cache memory.

35.(newly added)   The method of claim 33, wherein preventing comprises:

storing cache data accessed during initialization in the non-volatile cache memory; and

marking the cache data to prevent eviction of the cache data.

36.(newly added)   The method of claim 35, wherein marking the data includes storing metadata corresponding to the cache data in a second memory different than the non-volatile cache memory, wherein the metadata includes a pinned bit that is set by a memory control hub to prevent eviction of the corresponding cache data stored in the non-volatile cache memory.